

CLAIMS

What is claimed is:

1. A network storage device, said device comprising:

5 an interface configured for receiving an I/O request via a network;

a solid-state non-volatile memory;

a controller coupled to said interface and said solid-state non-volatile memory;

and

wherein said controller is configured for receiving said I/O request from said

10 interface and for processing said I/O request, and said solid-state non-volatile memory is configured for storing data associated with the I/O request when requested by said controller.

2. The network storage device of claim 1, wherein said I/O request is a file

15 system call and said interface is an Ethernet network interface.

3. The network storage device of claim 1, wherein said I/O request is a

block-level I/O request and said interface is a Fibre Channel interface.

20 4. The network storage device of claim 1, further comprising a volatile

memory coupled to said controller and for caching said data before said data is written to said solid-state non-volatile memory.

5. The network storage device in Claim 4, wherein said controller is

25 configured to read from said solid-state non-volatile memory if said I/O request corresponds to a read request and if said volatile memory does not contain the data corresponding to the read request.

6. The network storage device in Claim 4, wherein said controller is configured for flushing said volatile memory to said solid-state non-volatile memory when the network storage device experiences a power loss.

5

7. The network storage device in claim 1, further comprising a peripheral interface coupled to said controller and configured for coupling to at least one mass storage device.

10

8. A network storage device for a computer network, said device comprising: a network interface configured for receiving a file system call via the computer network;

a solid-state non-volatile memory;

15

a controller coupled to said network interface and said solid-state non-volatile memory; and

wherein said controller is configured for receiving said file system call from said network interface and for processing said file system call, and said solid-state non-volatile memory is configured for storing data associated with the file system call when requested by said controller.

20

9. The network storage device in Claim 8, further comprising a volatile memory coupled to said controller and for caching said data before said data is written to said solid-state non-volatile memory.

25

10. The network storage device in Claim 9, wherein said volatile memory comprises random access memory.

11. The network storage device in Claim 9, wherein said controller is configured to read from said solid-state non-volatile memory if said file system call corresponds to a read request and if said volatile memory does not contain the data corresponding to the read request.

5

12. The network storage device in Claim 11, wherein said controller is configured for flushing said volatile memory to said solid-state non-volatile memory upon a selected event.

10

13. The network storage device in claim 12, wherein said selected event includes the network storage device experiencing a power loss.

14. The network storage device in claim 8, wherein said solid-state non-volatile memory comprises flash memory.

15

15. The network storage device in claim 8, further comprising a peripheral interface coupled to said controller and configured for coupling to at least one mass storage device.

20

16. The network storage device in claim 8, wherein said controller is configured to read from said at least one mass storage device if said file system call corresponds to a read request and if said solid-state non-volatile memory does not contain the data corresponding to the read request.

25

17. The network storage device in claim 16, further comprising a power supply having an energy store comprising entirely of capacitors.

18. The network storage device in claim 17, wherein said controller is configured to include an embedded file system.

19. The network storage device in claim 18, wherein said power supply, said peripheral interface, said solid-state non-volatile memory, said volatile memory, said controller, said embedded file system, and said network interface are integrated into a form and size equivalent to a disk drive form factor of approximately three and a half inches or less.

20. A network storage device for a storage area work, said device comprising:  
a Fibre Channel interface configured for receiving a block-level I/O request via the storage area network;

a solid-state non-volatile memory;

a controller coupled to said network interface and said solid-state non-volatile memory; and

wherein said controller is configured for receiving said block-level I/O request from said Fibre Channel interface and for processing said block-level I/O request, and said solid-state non-volatile memory is configured for storing data associated with the block-level I/O request when requested by said controller.

21. The network storage device in claim 20, further comprising a volatile memory coupled to said controller and for caching said data before said data is written to said solid-state non-volatile memory.

22. The network storage device in Claim 21, wherein said volatile memory comprises random access memory.

23. The network storage device in Claim 21, wherein said controller is configured to read from said solid-state non-volatile memory if said block-level request corresponds to a read request and if said volatile memory does not contain the data corresponding to the read request.

5

24. The network storage device in Claim 21, wherein said controller is configured for flushing said volatile memory to said solid-state non-volatile memory upon a selected event.

10

25. The network storage device in claim 24, wherein said selected event includes the network storage device experiencing a power loss.

15

26. The network storage device in claim 20, wherein said solid-state non-volatile memory comprises flash memory.

20

27. The network storage device in claim 21, further comprising a peripheral interface coupled to said controller and configured for coupling to at least one mass storage device.

25

28. The network storage device in claim 27, wherein said controller is configured to read from said at least one mass storage device if said block-level I/O request corresponds to a read request and if said solid-state non-volatile memory does not contain the data corresponding to the read request.

29. The network storage device in claim 28, further comprising a power supply having an energy store comprising entirely of capacitors.

30. The network storage device in claim 29, wherein said power supply, said peripheral interface, said solid-state non-volatile memory, said volatile memory, said controller, and said Fibre Channel interface are integrated into a form and size equivalent to a disk drive form factor of approximately three and a half inches or less.

5

31. A method of operating a network storage device, comprising:

receiving an I/O request via a network using an interface;

receiving said I/O request from said interface;

processing said I/O request using a controller; and

10 storing data associated with the I/O request in a solid-state non-volatile memory when requested by said controller.